

Abstract of the Disclosure

A test mode control device using a nonvolatile ferroelectric memory enables a precise test of characteristics of a memory cell array by changing a reference voltage and timing regulated for a memory cell test in a software system without extra processes. In an embodiment, test modes and arrangement of data pins are programmed using a nonvolatile ferroelectric memory, and addresses, control signals and arrangement of data pins are regulated in a software system depending on a programmed code. As a result, characteristics of a cell array can be precisely tested without extra processes.